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Bound states of supercritical atoms and the generalized quantum dynamics

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Abstract

The problem of supercritical bound states of superheavy atoms are investigated within the formalism of the generalized quantum dynamics (GQD)developed in [J. Phys. A: Math. Gen. 32, pp. 5657-5677, 1999]. We study the diving of one bound state into the lower continuum. It is shown that the formalism of the GQD provides a new insight into the problem of supercritical bound states diving into continuum and the structure of vacuum in the field of an superheavy nucleus.

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Keywords

Bound states diving, Generalized quantum dynamics, Supercritical atoms